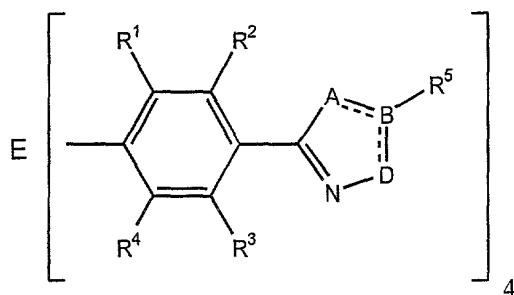


WHAT IS CLAIMED IS:

1. A compound of the following formula:



wherein

each of R^1 - R^4 is, independently, H, substituted or unsubstituted C_{1-6} alkyl, OH, C_{1-6} alkoxy, $N(R^6)(R^7)$, in which each of R^6 and R^7 is, independently, H or substituted or unsubstituted C_{1-6} alkyl, NO_2 , CN, or CO_2R^8 , in which R^8 is H or C_{1-6} alkyl; and

wherein R^5 is H, substituted or unsubstituted C_{1-6} alkyl, substituted or unsubstituted C_{2-6} alkenyl, substituted or unsubstituted C_{2-6} alkynyl, substituted or unsubstituted C_{6-20} aryl, substituted or unsubstituted alkylaryl, substituted or unsubstituted C_{4-20} heteroaryl, C_{10-20} diarylaminoaryl, or is absent, or B and D, together with R^5 and R^{11} , are substituted or unsubstituted aryl;

wherein A is O, S, $N(R^9)$ in which R^9 is absent, H, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, $N=N$, or $N=C(R^{10})$ in which the C is adjacent to B and in which R^{10} is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl;

wherein B is C or N;

wherein D is N, NH, or $C(R^{11})$ in which R^{11} is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, or B and D, together with R^5 and R^{11} are substituted or unsubstituted aryl;

and wherein E is C or Si;

provided that when A is O and D is N, then B is C and the floating double bond is between B and D;

further provided that when A is $N(R^9)$ and R^9 is absent, then B is N, R^5 is absent, D is NH, and the floating double bond is between A and B;

further provided that when A is $N=N$, then B is C, D is N, and the floating double bond is between B and D;

further provided that when A is $N=C(R^{10})$, then B is N, R^5 is absent, D is $C(R^{11})$, and the floating double bond is between B and D;

further provided that when A is $N(R^9)$ and R^9 is H, alkyl, or aryl, then B is C, D is $C(R^{11})$, and the floating double bond is between B and D;

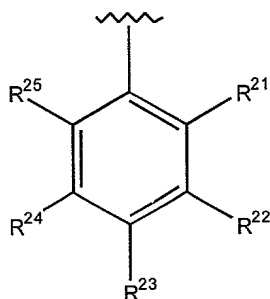
further provided that when A is O or S and D is $C(R^{11})$, then B is C and the floating double bond is between B and D.

2. The compound of claim 1, wherein A is O.

3. The compound of claim 2, wherein each of R^1 - R^4 is H.

4. The compound of claim 2, wherein R^5 is substituted or unsubstituted aryl, or substituted or unsubstituted alkylaryl.

5. The compound of claim 4, wherein R^5 has the following formula:



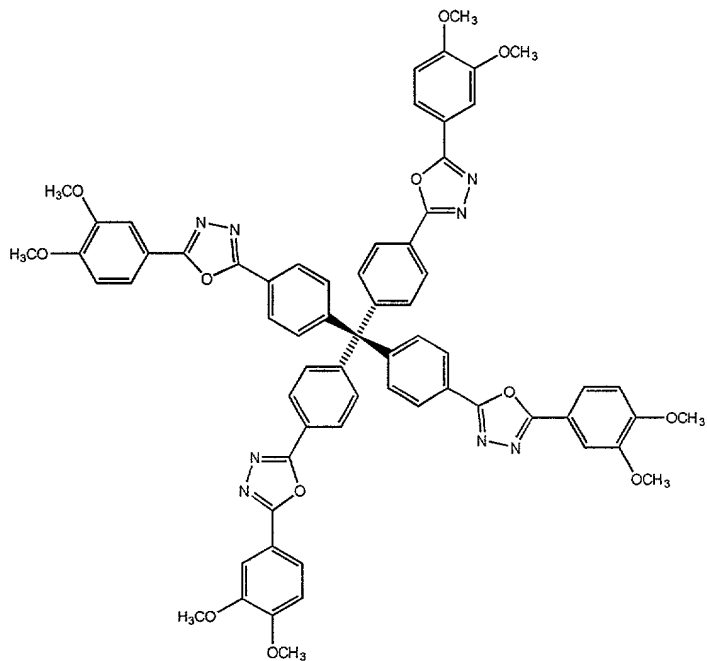
wherein each of R^{21} - R^{25} is, independently, H, substituted or unsubstituted C_{1-6} alkyl, OH, C_{1-6} alkoxy, $N(R^{26})(R^{27})$, in which each of R^{26} and R^{27} is, independently, H, substituted or unsubstituted C_{1-6} alkyl, substituted or unsubstituted aryl, substituted or unsubstituted alkylaryl, NO_2 , CN, or CO_2R^{28} , in which R^{28} is H or C_{1-6} alkyl.

6. The compound of claim 5, wherein each of R^{21} - R^{25} is, independently, H or methoxy.

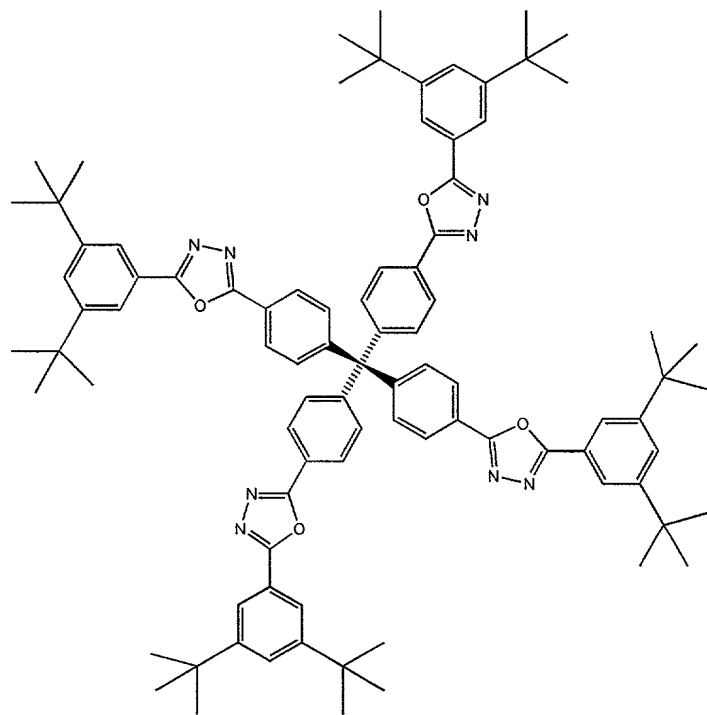
7. The compound of claim 5, wherein each of R^{21} - R^{25} is, independently, H or tert-butyl.

60 8. The compound of claim 5, wherein each of R^{21} - R^{25} is, independently, H or
61 trifluoromethyl.

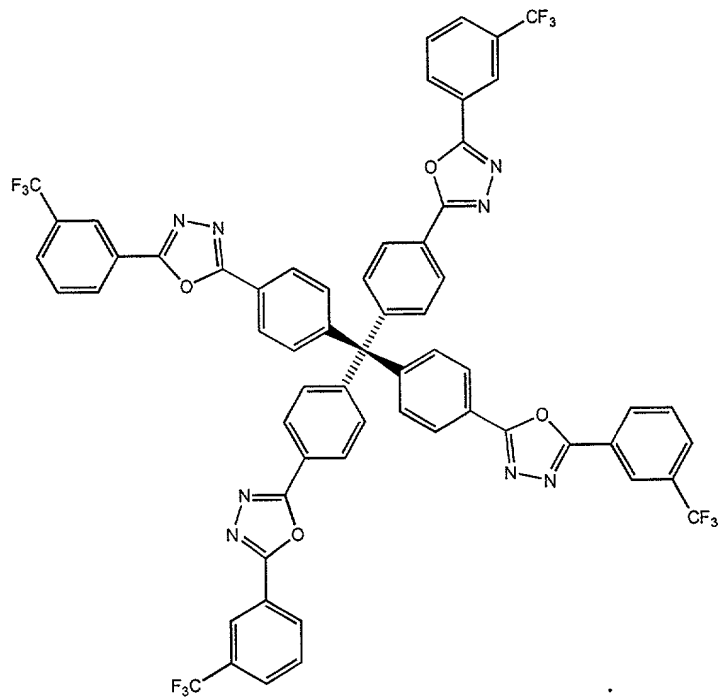
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63 9. The compound of claim 1, wherein the compound has the following formula:



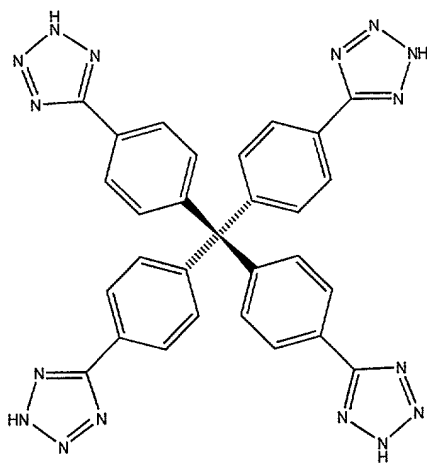
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65 10. The compound of claim 1, wherein the compound has the following formula:



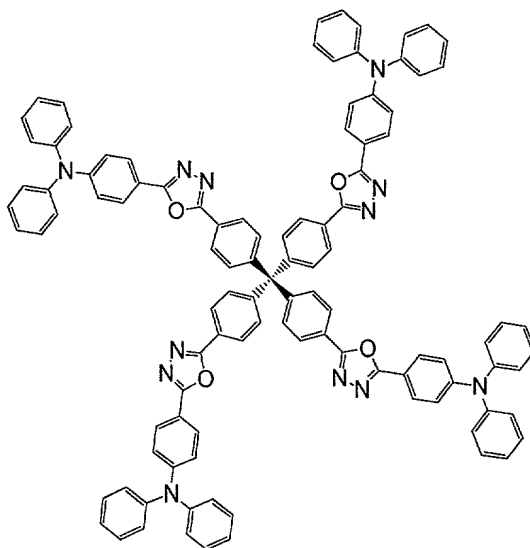
- 66 11. The compound of claim 1, wherein the compound has the following formula:



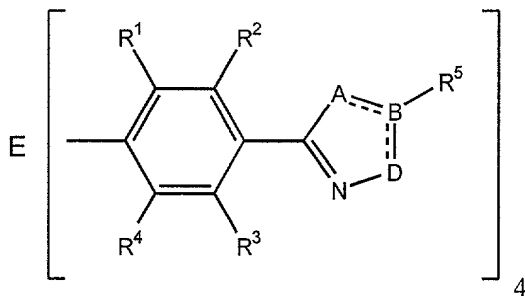
- 67 12. The compound of claim 1, wherein A is N(R⁹), in which R⁹ is absent.
- 68
- 69 13. The compound of claim 12, wherein the compound has the following formula:



14. The compound of claim 1, wherein the compound has the following formula:



15. An electroluminescence device comprising a substrate, a hole transporting layer, and emitting layer, and an electron transporting layer, wherein at least one of the hole transporting layer, the emitting layer, and the electron transporting layer comprises a compound having the following formula:



wherein

each of R^1 - R^4 is, independently, H, substituted or unsubstituted C_{1-6} alkyl, OH, C_{1-6} alkoxy, $N(R^6)(R^7)$, in which each of R^6 and R^7 is, independently, H or substituted or unsubstituted C_{1-6} alkyl, NO_2 , CN, or CO_2R^8 , in which R^8 is H or C_{1-6} alkyl; and

wherein R^5 is H, substituted or unsubstituted C_{1-6} alkyl, substituted or unsubstituted C_{2-6} alkenyl, substituted or unsubstituted C_{2-6} alkynyl, substituted or unsubstituted C_{6-20} aryl, substituted or unsubstituted alkylaryl, substituted or unsubstituted C_{4-20} heteroaryl, C_{10-20} diarylaminoaryl, or is absent, or B and D, together with R^5 and R^{11} , are substituted or unsubstituted aryl;

wherein A is O, S, N(R⁹) in which R⁹ is absent, H, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, N=N, or N=C(R¹⁰) in which the C is adjacent to B and in which R¹⁰ is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl;

wherein B is C or N;

wherein D is N, NH, or C(R¹¹) in which R¹¹ is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, or B and D, together with R⁵ and R¹¹ are substituted or unsubstituted aryl;

and wherein E is C or Si;

provided that when A is O and D is N, then B is C and the floating double bond is between B and D;

further provided that when A is N(R⁹) and R⁹ is absent, then B is N, R⁵ is absent, D is NH, and the floating double bond is between A and B;

further provided that when A is N=N, then B is C, D is N, and the floating double bond is between B and D;

further provided that when A is N=C(R¹⁰), then B is N, R⁵ is absent, D is C(R¹¹), and the floating double bond is between B and D;

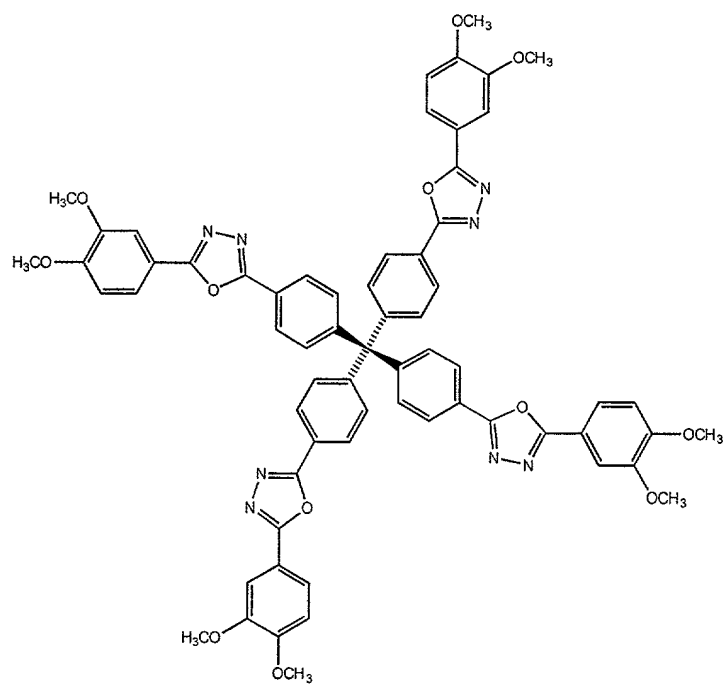
further provided that when A is N(R⁹) and R⁹ is H, alkyl, or aryl, then B is C, D is C(R¹¹), and the floating double bond is between B and D;

further provided that when A is O or S and D is C(R¹¹), then B is C and the floating double bond is between B and D.

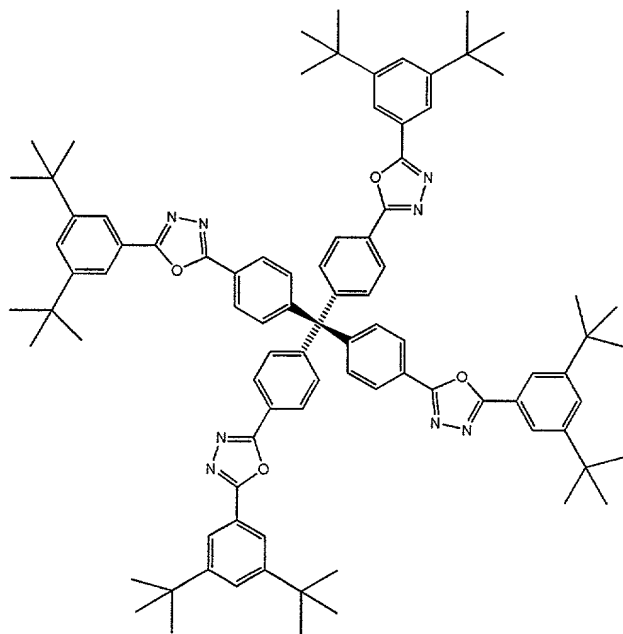
16. The device of claim 15, wherein A is O, B is C, and D is N.

17. The device of claim 16, wherein each of R¹-R⁴ is H.

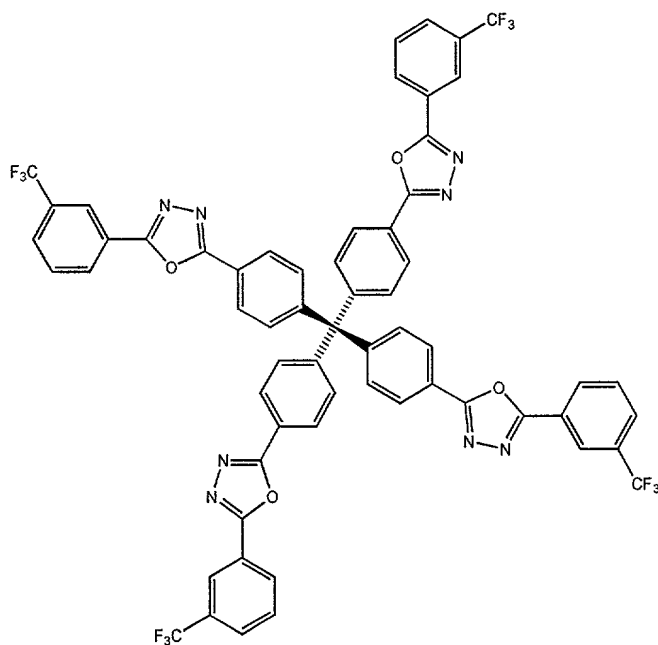
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18. The device of claim 15, wherein the compound has the following formula:



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19. The device of claim 15, wherein the compound has the following formula:



- 119 20. The device of claim 15, wherein the compound has the following formula:



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122 21. The device of claim 14, wherein the compound has the following formula:

